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HG18 Gas Cartridge Efficacy Testing using Mortality Collars for Fossorial Mammals. C.A. Ramey, USDA, Denver Wildlife Research Center, Denver, CO. Vertebrate pesticides are used selectively by the USDA/APHIS Animal Damage Control (ADC) Program including APHIS's Gas Cartridge for Coyotes, registered with the EPA to control coyotes in dens. It has two active ingredients (sodium nitrate and charcoal) and produces high concentrations of carbon monoxide when burned. ADC State Directors requested studies to determine its efficacy for controlling problem badgers (*Taxidea taxus*), red foxes (*Vulpes vulpes*), or striped skunks (*Mephitis mephitis*) in dens. Field efficacy investigations were conducted for each species according to EPA's Pesticide Assessment Guideline 96-17 and required at least 70% mortality. Free-ranging animals were equipped with either mortality-indicating or conventional radio telemetry collars prior to their release. Movements were monitored for recurring den use before testing began when mortality or survival of the target animals was recorded. Mortality was 33% (2/6) for badgers, 100% for striped skunks (10/10), and 100% for red fox (10/10). Both telemetry collars provided sufficient information to locate instrumented animals for excavation; however, conventional collars required an arbitrary assumption of death (no discernable movements for 3 days). Whereas, the mortality-indicating collars were activated after no movement occurred for 6 hrs. For some surviving badgers, no movements were observed until they resurfaced 5-72 hrs after treatment. Cost-benefit analysis favored mortality-indicating collars, because their use was less costly than the use of conventional collars which required extending each test 3 additional days, and they lessened the chance of accidental excavation deaths of treatment survivors.